(No Model.) 3 Sheets—Sheet 1.

H. WESTPHAL.

COIN CONTROLLED BICYCLE RACK.

No. 583,410. Patented May 25, 1897.

Fig. 1.

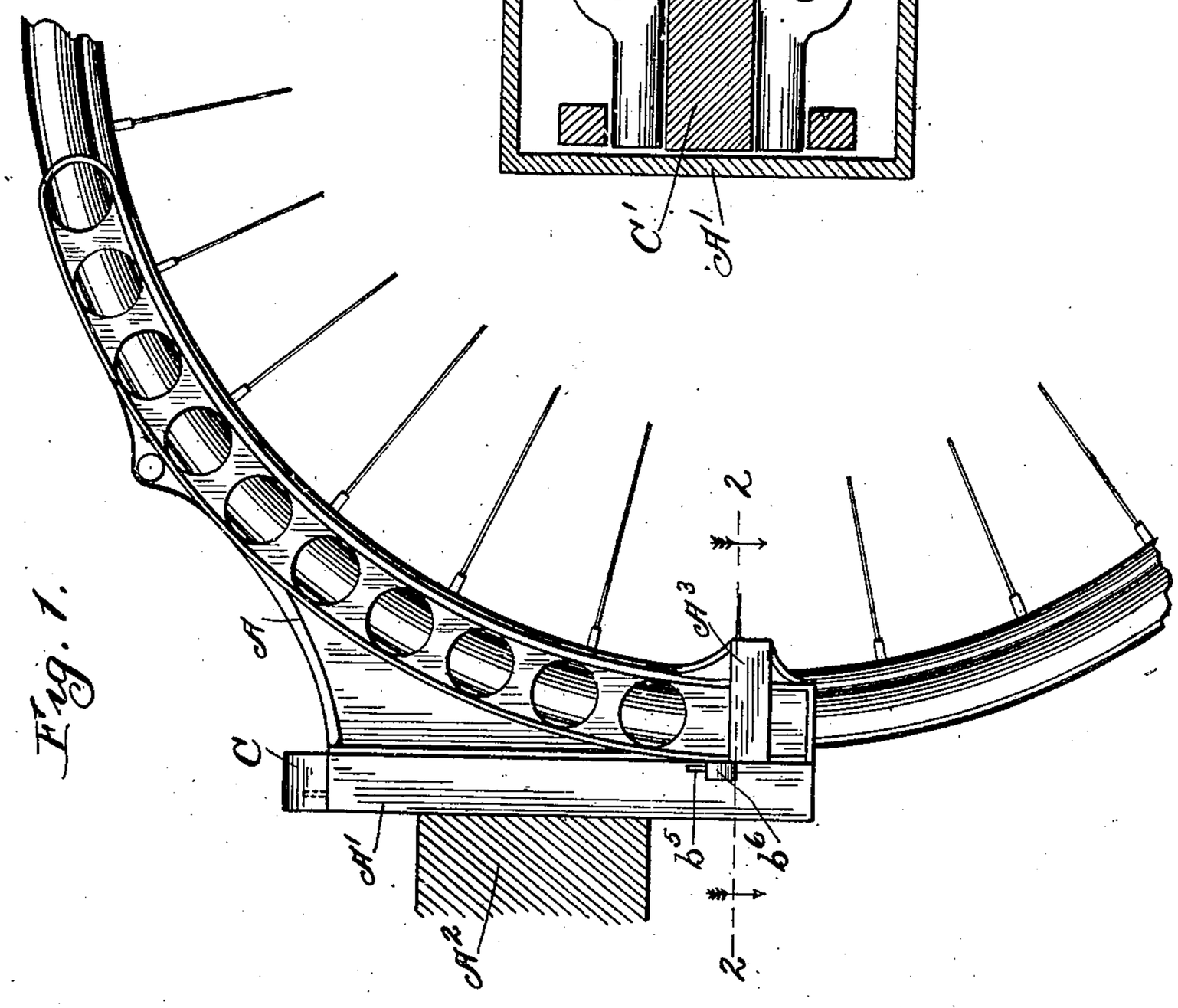
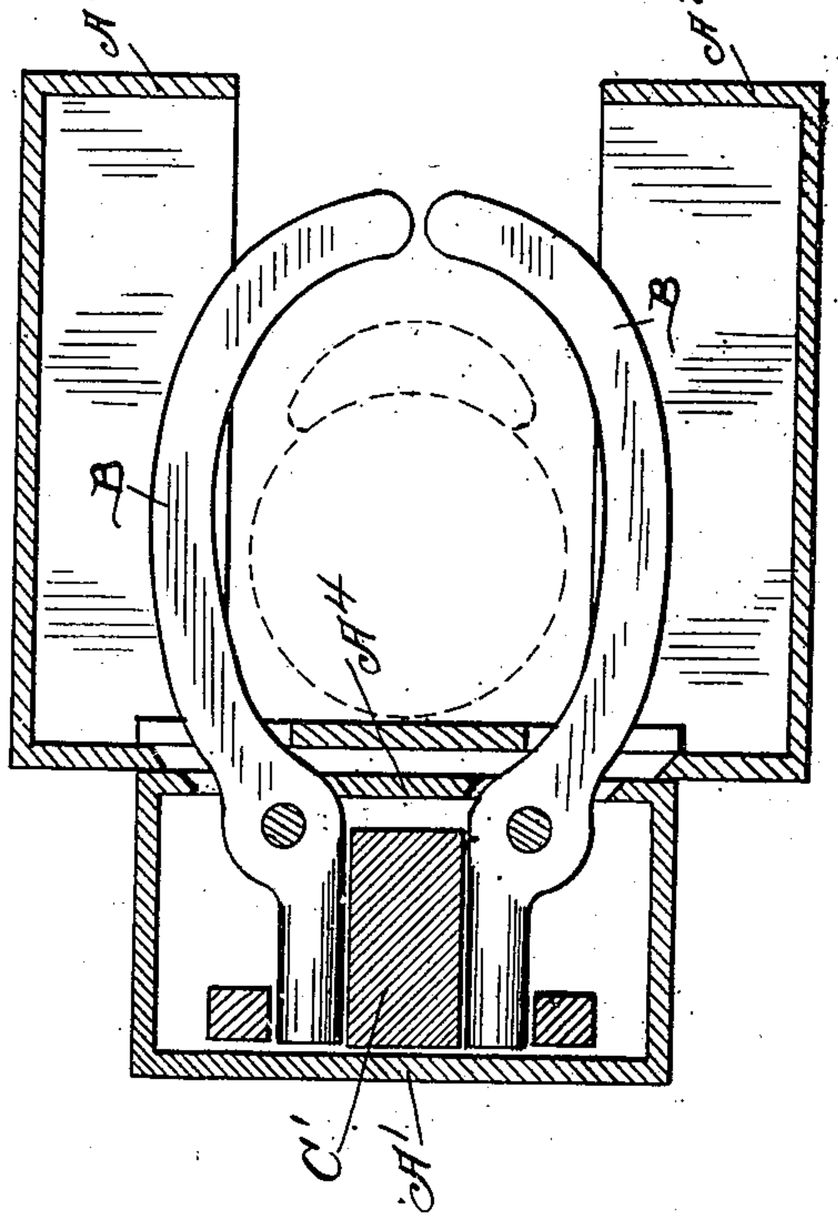


Fig. 2.



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(No Model.) 3 Sheets—Sheet 2.

H. WESTPHAL.

COIN CONTROLLED BICYCLE RACK.

No. 583,410. Patented May 25, 1897.

Fig. 3.

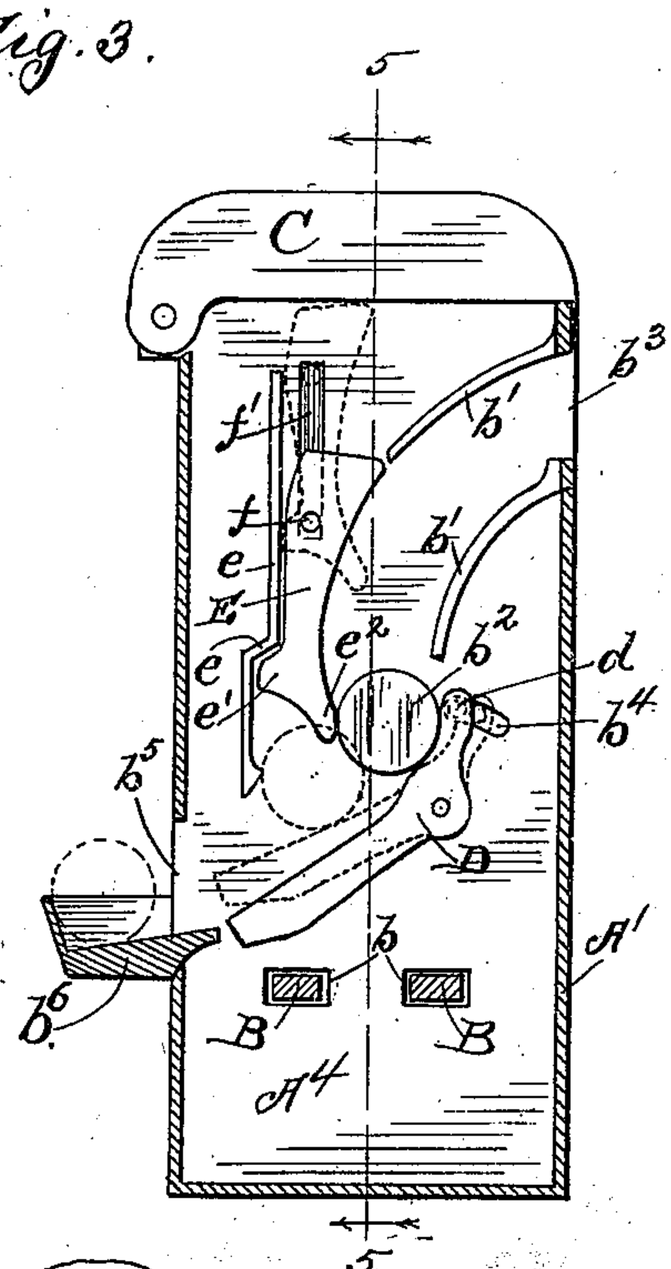


Fig. 4.

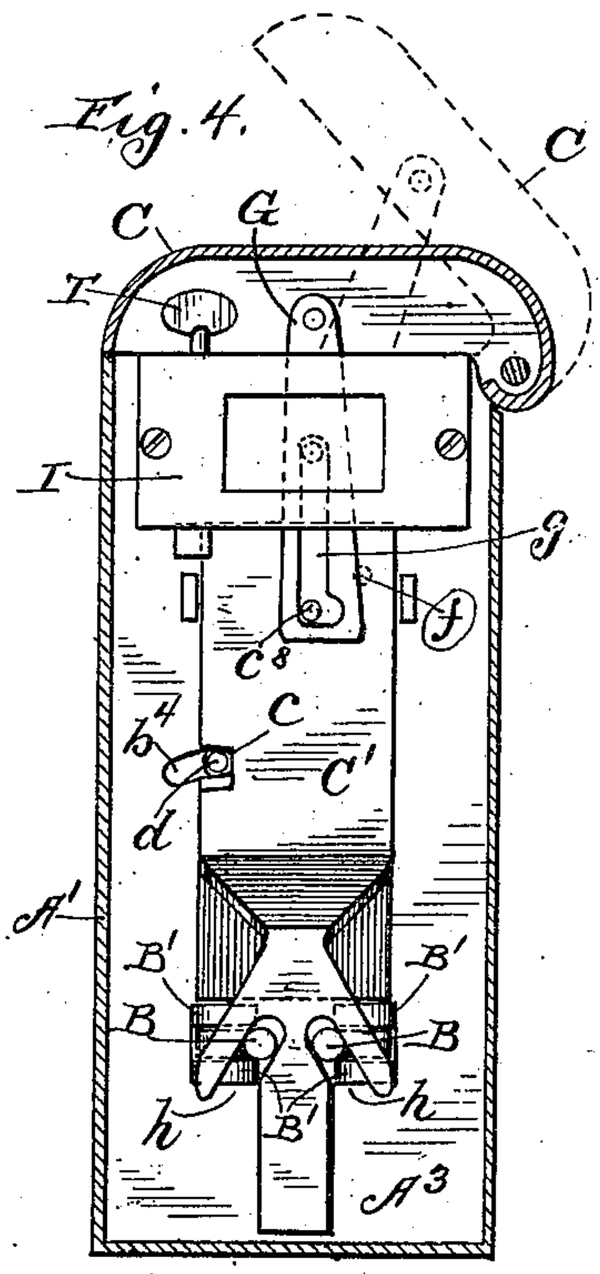


Fig. 5.

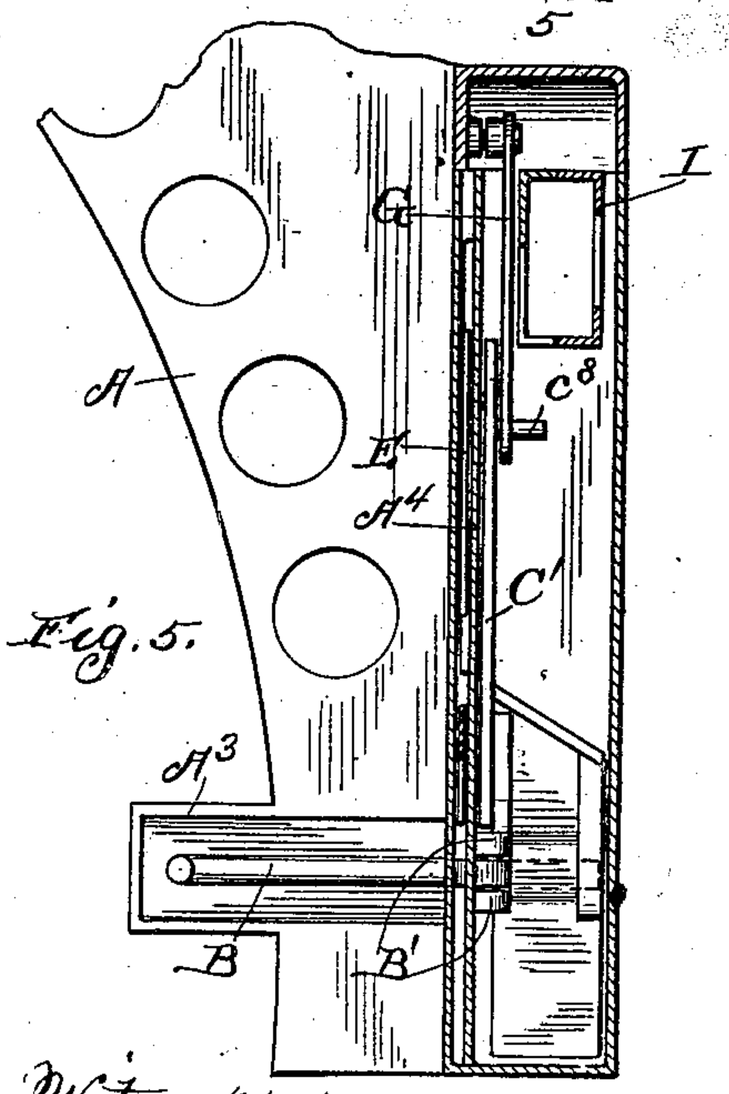


Fig. 6.

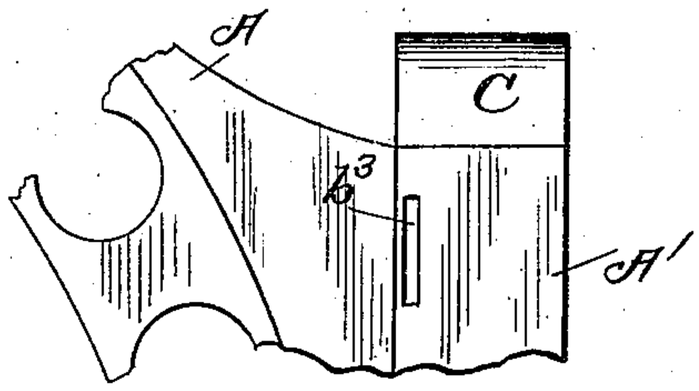
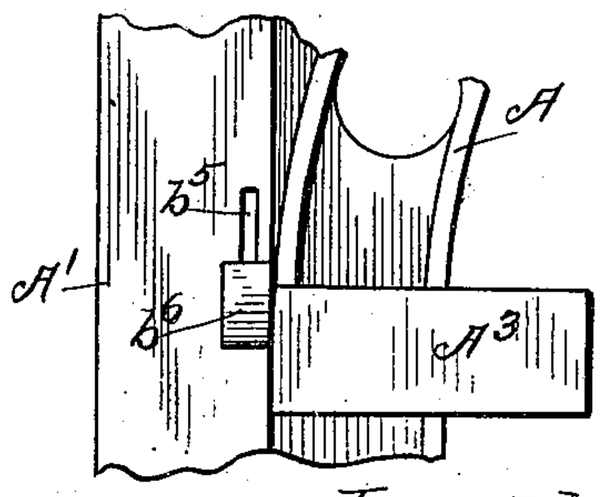


Fig. 7.



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COIN CONTROLLED BICYCLE RACK.

No. 583,410. Patented May 25, 1897.

Fig. 9.

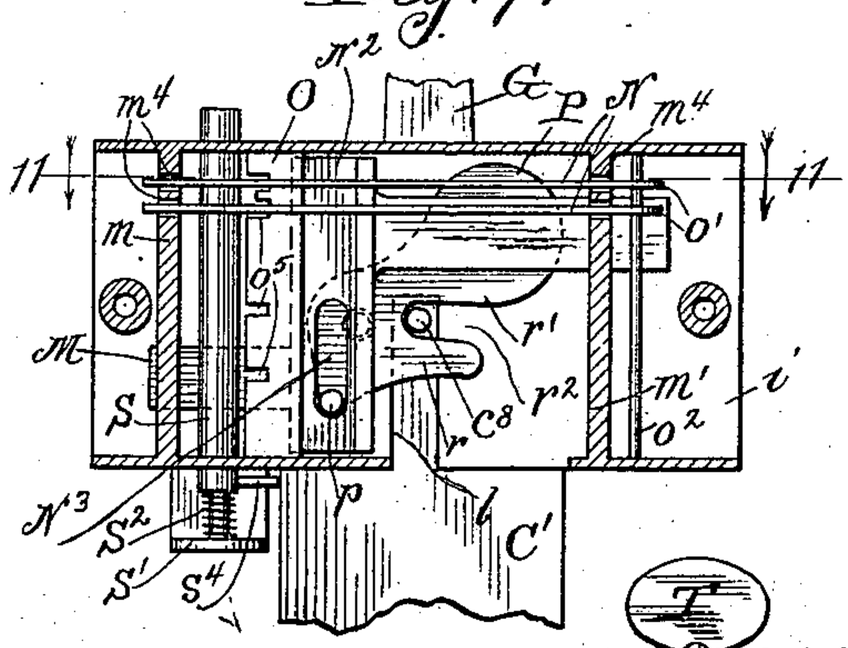


Fig. 10.

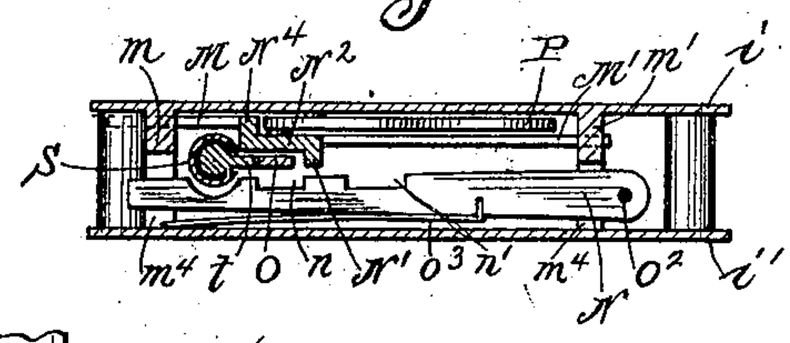


Fig. 8.

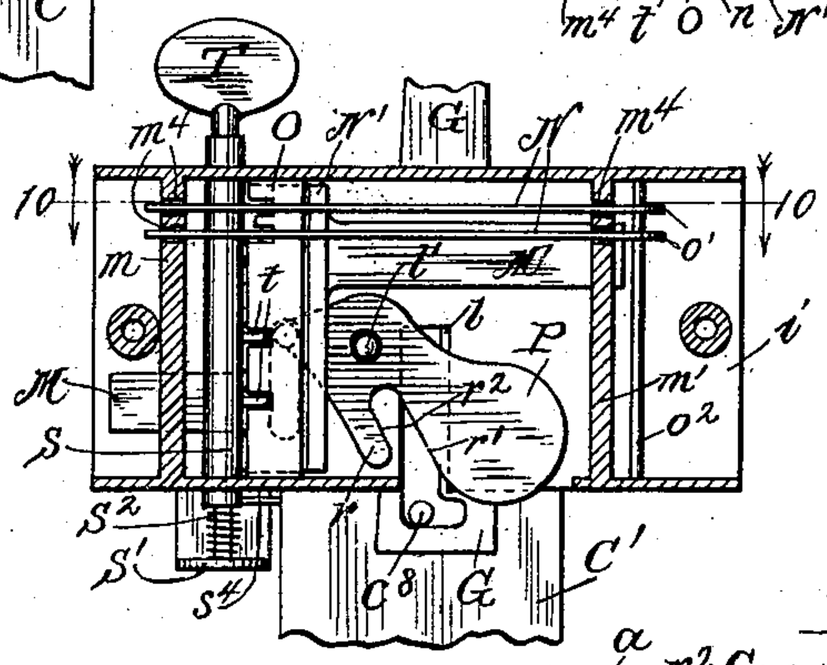


Fig. 11.

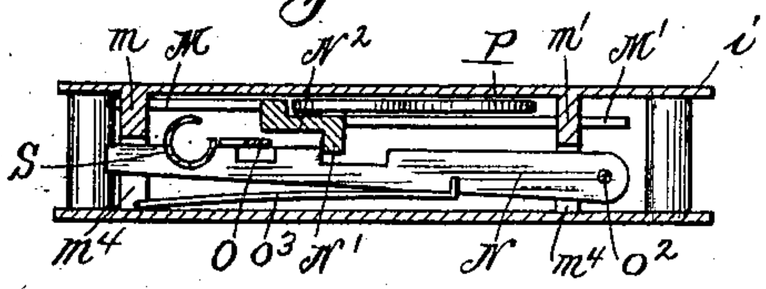


Fig. 12.

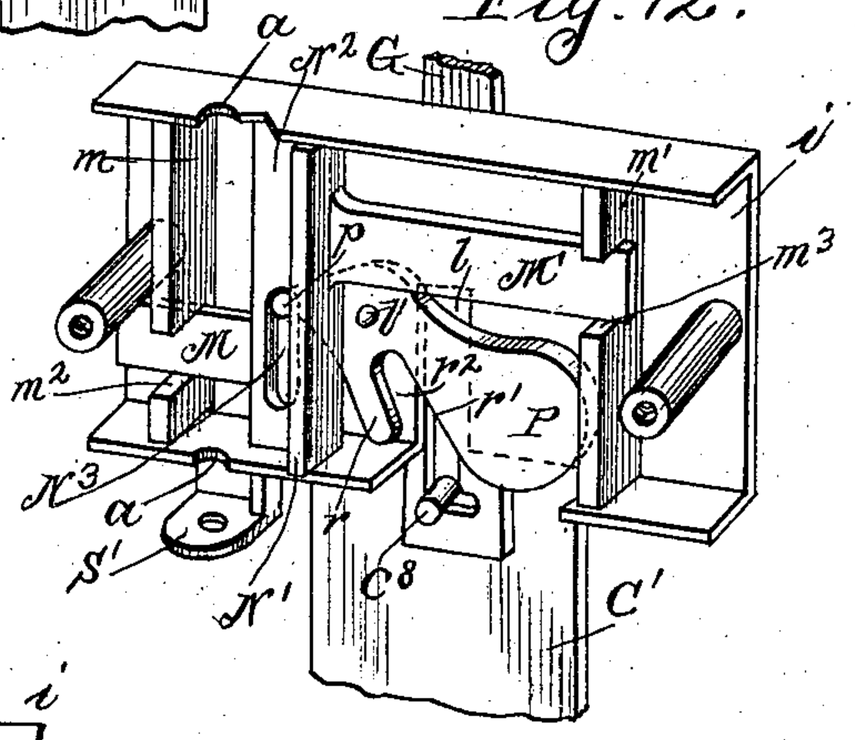
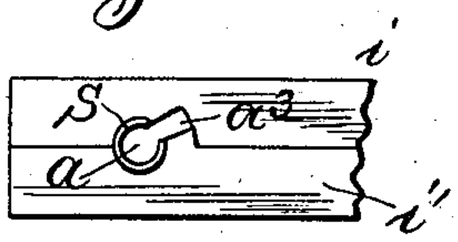


Fig. 13.



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UNITED STATES PATENT OFFICE.

HENRY WESTPHAL, OF CHICAGO, ILLINOIS.

COIN-CONTROLLED BICYCLE-RACK.

SPECIFICATION forming part of Letters Patent No. 583,410, dated May 25, 1897.

Application filed August 17, 1896. Serial No. 602,979. (No model.)

To all whom it may concern:

Be it known that I, HENRY WESTPHAL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Coin-Controlled Bicycle-Racks, of which the following is a specification.

This invention relates to improvements in that class of racks, holders, or stands to be used for supporting bicycles in an upright position and automatically locking them, so as to prevent their removal, in which the operation of the device is controlled by a coin or disk; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The keys to the locks of the bicycle racks, stands, or holders heretofore and now in use can generally be removed, and in order to prevent their wrongful removal by children or mischievously-inclined persons when the racks are located on the outside of a building the proprietor must remove them, which necessitates the rider leaving his bicycle at the stand or rack until he can obtain the key thereto, so that he can unlock the rack and place and lock therein his wheel. When he desires to remove his wheel from the rack, he must return the key to the proprietor, or it may be carried away by a mischievous boy or other person, thus rendering the rack virtually useless.

It is therefore the main object of my present invention to afford a rack for bicycles in which access to the key of the lock thereof may be obtained and the device operated only by the deposit of a coin of a specific denomination or of a check of a certain size.

Other objects and advantages will appear in the following description.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a view in side elevation of my rack secured to a support, showing a portion of one of the wheels of a bicycle locked therein. Fig. 2 is an enlarged plan sectional view of the lower part of the casing, taken on line 2 2 of Fig. 1, showing by dotted lines the wheel between the securing-latches. Fig. 3 is a front vertical sectional view of the casing, showing the coin-controlling mechanism on a partition or plate thereof. Fig. 4 is a rear vertical sectional view of a like portion, showing the operating-bar and lock on the rear surface of the plate or partition and illustrating by dotted lines the cover for the key in a raised position. Fig. 5 is a vertical sectional view, partly in elevation, taken on line 5 5 of Fig. 3, showing the construction of the casing and a portion of one of the side pieces. Fig. 6 is a fragmental view in elevation of that part of the casing containing the slot for the deposit of the coin. Fig. 7 is a like view of the portion of the casing which is provided with a delivery-slot and receptacle for the coin. Fig. 8 is a view in elevation of the lock with one of the plates of the casing thereof removed, showing the key locked in and a portion of the operating-bar of the rack to engage the lock. Fig. 9 is a like view showing the position of the parts when the key is removed. Fig. 10 is a plan sectional view taken on line 10 10 of Fig. 8. Fig. 11 is a like view taken on line 11 11 of Fig. 9. Fig. 12 is a perspective view of the lock with one of the plates of the casing, the key-guide, stay, and tumblers removed; and Fig. 13 is a plan view of a portion of the top of the locking-case, showing the keyhole.

Similar letters refer to like parts throughout the different views of the drawings.

A represents the side pieces of the holder and are secured parallel with each other at the sides of the casing or box A′, which may be secured to a suitable support A^2, such as a board, on the wall or floor of a building. The pieces A are placed a slight distance apart to admit of the wheel of the bicycle being inserted between them and are formed or provided, in their lower parts, with boxes A^3 to receive the securing-latches B, which are curved at their outer portions to embrace the tire and rim of the wheel and have their inner parts pivotally secured on lugs B′ on the casing. On the top of the casing is hinged a cover C to protect the key against removal and the lock from being tampered with and against rain and exposure. As shown, the

casing A′ is preferably rectangular and has in its front part a vertical plate or partition A^4, provided with openings *b* for the reception and operation of the securing-latches. The front surface of the plate A^4 is provided near its top with a guideway *b′* for the coin or check b^2 as it is passed through the slot b^3 in the upper part of the casing. Below the guideway *b′* and on the front of the casing A^4 is pivotally secured a lever D, which carries on its upper end a pin *d*, which passes through a slot b^4 in the plate A^4 and engages a recess *c* in the operating-bar C′ and prevents it being moved. The lower part of the lever D normally lies in an inclined position toward the opening b^5 in the opposite side of the casing from the slot b^3 and guides the coin thereto, from whence it will pass into the receptacle b^6 for its reception. Extending vertically on the front of the plate A^4 is a cam-shaped flange or rib *e*, with which the heel *e′* of the boot-shaped dog E impinges and forces its toe e^2 against the coin or check when the dog is raised, thereby causing the lever D to be lifted to the position shown by dotted lines in Fig. 3 and permitting the coin to pass through the slot b^5 into its receptacle.

The dog E is pivoted on a pin *f* on the front surface of the bar C′, which passes through a slot *f′* in the plate or partition A^4, as shown in Fig. 3 of the drawings. To the rear upper portion of the bar C′ is secured a pin or projection c^8, which engages the lock I, located in the upper part of the casing, as well as the piece G, which is pivoted to the cover C and is provided with a slot *g*, somewhat enlarged at its lower end to permit of its lateral movement on the pin c^8 on the operating-bar, the lower part of which extends rearwardly (see Fig. 5) and is provided with two downwardly and outwardly inclined slots *h* for the reception and operation of the inner ends of the securing-latches.

The lock which I prefer to use and which is herein illustrated is of the same construction which is set forth and claimed in Letters Patent No. 532,506, issued to me on January 15, 1895, and consists of two plates *i i′*, the plate *i* being formed with a vertical slot *l* near its middle, which extends through the bottom of the casing, as shown, and having on its inner surface close to each of its ends the ribs *m m′*, both of which are formed with openings or recesses m^2 m^3, in which the sliding bolts M M′ operate, and are thereby guided in their backward and forward movements. The opening or recess m^2 is formed near the lower portion of the rib *m* and the opening or recess m^3 near the upper end of the rib *m′*.

Near their upper portions and on their surfaces adjacent to the plate *i′* each of the ribs *m* and *m′* is formed with recesses or mortises m^4 for the reception and operation of the spring-actuated tumblers N, which are formed with recesses *n n′*, the former of which engages with the stay O and the latter with the sliding rib or bead N′ on the piece N^2, which unites the sliding bolts M and M′ and is preferably formed in cross-section, as shown in Figs. 10 and 11, with two projections N′ and N^4 at its edges extending in opposite directions, the flat piece N^2 being provided near its lower portion with a vertical slot N^3, in which fits and operates a pin or plug *p* on the bifurcated cam P, which cam is pivotally secured to the plate *i* at a suitable point near the outer portion of slot L therein, as shown at *l′*. This cam is made, as clearly shown in Figs. 8, 9, and 12, with two prongs *r r′*, which form an open slot or fork r^2, into which will engage the lug or pin c^8 on the bar C′.

As shown in Figs. 8, 9, and 10, the tumblers N are pivotally secured, as at *o′*, on the rod o^2, having its bearings in the top and bottom of the casing near the farther end from the key-guide, and are provided with springs o^3, which are interposed between the tumblers and the plate *i′*, and they will be thus forced forward to engage with the bead or rib N′ on the sliding piece N^2.

Near the rib *m* the casing is provided in its top and bottom with suitable circular openings *a*, through which is passed a split tube or key-guide S, which has its bearings for its lower end in the depending bracket S′ on the bottom of the lock-casing. The lower end of the key-guide S is provided with a spring s^2, which serves to revolve the key-guide till the split therein, through which the projections *t* on the key T pass to engage with the tumblers, into alinement with the openings a^3 therefor in the top of the casing, and is prevented from turning the guide too far by means of the lug or pin s^4, secured thereto, which is so placed that it will strike the bracket S′, which acts as a check.

The stay O, which is provided with a number of recesses o^5 to correspond with the number of projections *t* on the key T, is rigidly secured in a vertical position and longitudinally with the lock-casing between the bead N′ and the key-guide and between the tumblers and the piece N^2. This stay is employed to regulate the combination of the lock, for it is obvious that the projections *t* on the key must correspond in number and dimensions with the recesses in the stay. Otherwise they would not pass through the same.

It is evident that the pin or projection c^8 on the bar C′ will extend into the slot *l* of the plate *i* of the lock and will engage with the open slot r^2 or fork between the prongs *r* and *r′* on the cam P, when the upward movement of the operating-bar C′, provided, as before stated, with the projection or pin c^8, engaging with the prongs *r* and *r′*, will cause the cam P to be raised to the position indicated in Fig. 9, the movement of which cam, by means of its pin *p* operating in the slot N^3 of the plate N^2, will cause the sliding bolts M and M′ and the bead N′, which are connected to the plate N^2 or made integral there-

with, to be retracted to the position shown in Fig. 9, which operation removes the plate N^2 from interference with the projections on the shank of the key, and thus permits the key-guide S to be partly revolved, by means of the spring s^2, till the projections of the key are in alinement with the openings a^3 in the top of the casing, when, and not before, the key may be withdrawn, and the operating-bar C′ will be securely locked in said position by reason of the engagement of the tumblers N with the bead N′.

In order to release or unlock the operating-bar C′, it will be necessary to replace the key in the key-guide, when by turning the same its projections will engage the tumblers and will free them from engagement with the bead N′, when by reason of the weight of the bar C′ and cam P they will be lowered, as shown in Fig. 8, which operation will interpose the plate N^2 between the projections on the key-shank and the opening a^3 in the top of the casing and prevent the key being removed.

When it is desired to use the rack, the wheel may be placed between the latches, and a coin or check of the requisite denomination or size may be deposited in the slot b^3, from whence it will glide through the guideway b' to the toe e^2 of the dog E and rest on the lever D, when by raising the lid or cover C, which is connected to the bar C′ by means of the piece G, the coin will cause the lever D to be disengaged from the recess in the operating-bar and will permit it to be raised, so that the pin c^8 will lift the cam P and release the key from the lock. When the above operation has been performed, the check or coin will occupy the position shown by dotted lines in Fig. 3 and will be retained in said position until the bar is released by means of the key to the lock, when it may be lowered, which will release the securing-latches and allow the wheel to be removed and at the same time deposit the coin in its receptacle.

What I claim is—

1. The combination of a rack or stand, with a securing device for the wheel, and a locking mechanism, both located in the stand, a connection uniting the locking mechanism and the securing device, and a controlling mechanism engaging said connection and adapted to be disengaged therefrom by the deposit of a coin or check and to thereby release the key to the lock, substantially as described.

2. The combination of a rack or stand, with a securing device for the wheel, and a locking mechanism, both located in the stand, a connection uniting the locking mechanism and the securing device, and a controlling mechanism engaging the said connection and adapted to be disengaged therefrom by the deposit of a coin or check and to thereby release the key to the lock and to retain the coin or check, the same being released by the insertion of the key, substantially as described.

3. The combination of a rack or stand, having a casing for the operating mechanism, a lock in the casing, a cover hinged so as to protect the lock and key thereof, a securing device for the wheel, a connection uniting the lock, the securing device and the cover, and a controlling mechanism engaging said connection and adapted to be disengaged therefrom by the deposit of a check or coin and to thereby release the key to the lock, substantially as described.

4. The combination of a rack or stand having a casing for the operating mechanism, a lock within the casing, a cover hinged to the casing so as to cover the keyhole of the lock, securing-latches pivotally secured in the casing, an operating-bar having means at its lower part to operate the latches and a projection at its upper part to engage the lock, a guideway in the casing for the coin, a lever pivoted below the guideway and adapted to engage the operating-bar, a slotted piece pivotally secured to the cover and engaging the projection on the operating-bar, a cam-shaped rib on the casing and a pivoted dog on the bar adapted to impinge with said rib substantially as described.

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